

CLAIMS

1 1. An apparatus comprising:
2 at least one processor;
3 a memory coupled to the at least one processor;
4 a pause/resume mechanism residing in the memory and executed by the at least
5 one processor, the pause/resume mechanism sending a pause message when a first
6 operating system needs to be restarted to at least one other operating system that is using
7 a shared resource that is also used by the first operating system, the pause/resume
8 mechanism sending a resume message to the at least one other operating system after the
9 first operating system is restarted.

1 2. The apparatus of claim 1 wherein the pause/resume mechanism receives a pause
2 complete message from each other operating system to indicate each other operating
3 system has completed pending accesses to the shared resource.

1 3. The apparatus of claim 1 wherein the pause/resume mechanism disconnects the
2 first operating system from the second operating system before the first operating system
3 is restarted.

1 4. The apparatus of claim 1 wherein the pause/resume mechanism reconnects the
2 first operating system to the at least one other operating system after the first operating
3 system is restarted.

1 5. The apparatus of claim 1 wherein the resume message indicates that the first
2 operating system is ready to resume sharing the shared resource with the at least one other
3 operating system.

- 1 6. A computer system comprising:
2 a first operating system residing in a memory, the first operating system owning a
3 shared resource;
4 a second operating system residing in the memory, the second operating system
5 using the share resource;
6 a pause/resume mechanism residing in the memory, the pause/resume mechanism
7 sending a pause message to the second operating system when the first operating system
8 needs to be restarted, the pause/resume mechanism sending a resume message to the
9 second operating system after the first operating system is restarted.
- 1 7. The computer system of claim 6 further comprising a plurality of operating
2 systems that use the shared resource, wherein the pause/resume mechanism sends the
3 pause message and the resume message to the plurality of operating systems.
- 1 8. The computer system of claim 6 wherein the pause/resume mechanism receives a
2 pause complete message from the second operating system to indicate the second
3 operating system has completed pending accesses to the shared resource.
- 1 9. The computer system of claim 6 wherein the pause/resume mechanism
2 disconnects the first operating system from the the second operating system before the
3 first operating system is restarted.
- 1 10. The computer system of claim 6 wherein the pause/resume mechanism reconnects
2 the first operating system and the second operating system after the first operating system
3 is restarted.

1 11. The computer system of claim 6 wherein the resume message indicates that the
2 first operating system is ready to resume sharing the shared resource with the second
3 operating system.

1 12. A computer system comprising:
2 a first operating system residing in a memory, the first operating system owning a
3 shared resource;
4 a second operating system residing in the memory, the second operating system
5 using the share resource;
6 the first operating system comprising a pause/resume mechanism that sends a
7 pause message to the second operating system when the first operating system needs to be
8 restarted, that receives a pause complete message from the second operating system to
9 indicate the second operating system has completed pending accesses to the shared
10 resource, that sends a disconnect message to the second operating system before the first
11 operating system is restarted, that sends a connect message to the second operating
12 system after the first operating system is restarted to inform the second operating system
13 that the first operating system has been restarted, and that sends a resume message to the
14 second operating system after the first operating system is restarted to indicate to the
15 second operating system that the first operating system is ready to resume sharing the
16 shared resource with the second operating system.

- 1 13. A computer-implemented method for sharing a shared resource between a first
2 operating system and at least one other operating system, the method comprising the steps
3 of:
4 sending a pause message when the first operating system needs to be restarted to
5 the at least one other operating system; and
6 sending a resume message to the at least one other operating system after the first
7 operating system is restarted.
- 1 14. The method of claim 13 further comprising the step of receiving a pause complete
2 message from each other operating system to indicate each other operating system has
3 completed pending accesses to the shared resource.
- 1 15. The method of claim 13 further comprising the step of disconnecting the first
2 operating system from the at least one other operating system before the first operating
3 system is restarted.
- 1 16. The method of claim 13 further comprising the step of reconnecting the first
2 operating system to the at least one other operating system after the first operating system
3 is restarted.
- 1 17. The method of claim 13 wherein the resume message indicates that the first
2 operating system is ready to resume sharing the shared resource with the at least one other
3 operating system.

1 18. A computer-implemented method for sharing a shared resource owned by a first
2 operating system with a second operating system, the method comprising the steps of:
3 (A) sending a pause message to the second operating system when the first
4 operating system needs to be restarted; and
5 (B) sending a resume message to the second operating system after the first
6 operating system is restarted.

1 19. The method of claim 18 further comprising the step of:
2 a plurality of operating systems using the shared resource, wherein step (A) sends
3 the pause message to the plurality of operating systems, and wherein step (B) sends the
4 resume message to the plurality of operating systems.

1 20. The method of claim 18 further comprising the step of receiving a pause complete
2 message from the second operating system to indicate the second operating system has
3 completed pending accesses to the shared resource.

1 21. The method of claim 18 further comprising the step of disconnecting the first
2 operating system from the second operating system before the first operating system is
3 restarted.

1 22. The method of claim 18 further comprising the step of reconnecting the first
2 operating system to the second operating system after the first operating system is
3 restarted.

1 23. The method of claim 18 wherein the resume message indicates that the first
2 operating system is ready to resume sharing the shared resource with the second operating
3 system.

1 24. A computer-implemented method for sharing a shared resource between a first
2 operating system and a second operating system, the method comprising the steps of:
3 the first operating system sending a pause message to the second operating system
4 when the first operating system needs to be restarted;
5 the second operating system sending a pause complete message to the first
6 operating system to indicate the second operating system has completed pending accesses
7 to the shared resource;
8 the first operating system sending a disconnect message to the second operating
9 system before the first operating system is restarted;
10 the first operating system sending a connect message to the second operating
11 system after the first operating system is restarted to inform the second operating system
12 that the first operating system has been restarted; and
13 the first operating system sending a resume message to the second operating
14 system after the first operating system is restarted to indicate to the second operating
15 system that the first operating system is ready to resume sharing the shared resource with
16 the second operating system.

- 1 25. A program product comprising:
2 (A) a pause/resume mechanism that sends a pause message when a first operating
3 system needs to be restarted to at least one other operating system that is using a shared
4 resource that is also used by the first operating system, the pause/resume mechanism
5 sending a resume message to the at least one other operating system after the first
6 operating system is restarted; and
7 (B) computer readable signal bearing media bearing the pause/resume mechanism.
- 1 26. The program product of claim 25 wherein the signal bearing media comprises
2 recordable media.
- 1 27. The program product of claim 25 wherein the signal bearing media comprises
2 transmission media.
- 1 28. The program product of claim 25 wherein the pause/resume mechanism receives a
2 pause complete message from each other operating system to indicate each other
3 operating system has completed pending accesses to the shared resource.
- 1 29. The program product of claim 25 wherein the pause/resume mechanism
2 disconnects the first operating system from the at least one other operating system before
3 the first operating system is restarted.
- 1 30. The program product of claim 25 wherein the pause/resume mechanism
2 reconnects the first operating system to the at least one other operating system after the
3 first operating system is restarted.

1 31. The program product of claim 25 wherein the resume message indicates that the
2 first operating system is ready to resume sharing the shared resource with the at least one
3 other operating system.

- 1 32. A program product comprising:
2 a pause/resume mechanism that sends a pause message to a second operating
3 system when a first operating system needs to be restarted and that sends a resume
4 message to the second operating system after the first operating system is restarted; and
5 (B) computer readable signal bearing media bearing the pause/resume mechanism.
- 1 33. The program product of claim 32 wherein the signal bearing media comprises
2 recordable media.
- 1 34. The program product of claim 32 wherein the signal bearing media comprises
2 transmission media.
- 1 35. The program product of claim 32 wherein a plurality of operating systems use the
2 shared resource, wherein the pause/resume mechanism sends the pause message and the
3 resume message to the plurality of operating systems.
- 1 36. The program product of claim 32 wherein the pause/resume mechanism receives a
2 pause complete message from the second operating system to indicate the second
3 operating system has completed pending accesses to the shared resource.
- 1 37. The program product of claim 32 wherein the pause/resume mechanism
2 disconnects the first operating system from the second operating system before the first
3 operating system is restarted.
- 1 38. The program product of claim 32 wherein the pause/resume mechanism
2 reconnects the first operating system to the second operating system after the first
3 operating system is restarted.

- 1 39. The program product of claim 32 wherein the resume message indicates that the
- 2 first operating system is ready to resume sharing the shared resource with the second
- 3 operating system.

1 40. A program product comprising:
2 a pause/resume mechanism that sends a pause message to a second operating
3 system when a first operating system needs to be restarted, that receives a pause complete
4 message from the second operating system to indicate the second operating system has
5 completed pending accesses to a shared resource, that sends a disconnect message to the
6 second operating system before the first operating system is restarted, that sends a
7 connect message to the second operating system after the first operating system is
8 restarted to inform the second operating system that the first operating system has been
9 restarted, and that sends a resume message to the second operating system after the first
10 operating system is restarted to indicate to the second operating system that the first
11 operating system is ready to resume sharing the shared resource with the second operating
12 system; and
13 (B) computer readable signal bearing media bearing the pause/resume mechanism.

1 41. The program product of claim 40 wherein the signal bearing media comprises
2 recordable media.

1 42. The program product of claim 40 wherein the signal bearing media comprises
2 transmission media.

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